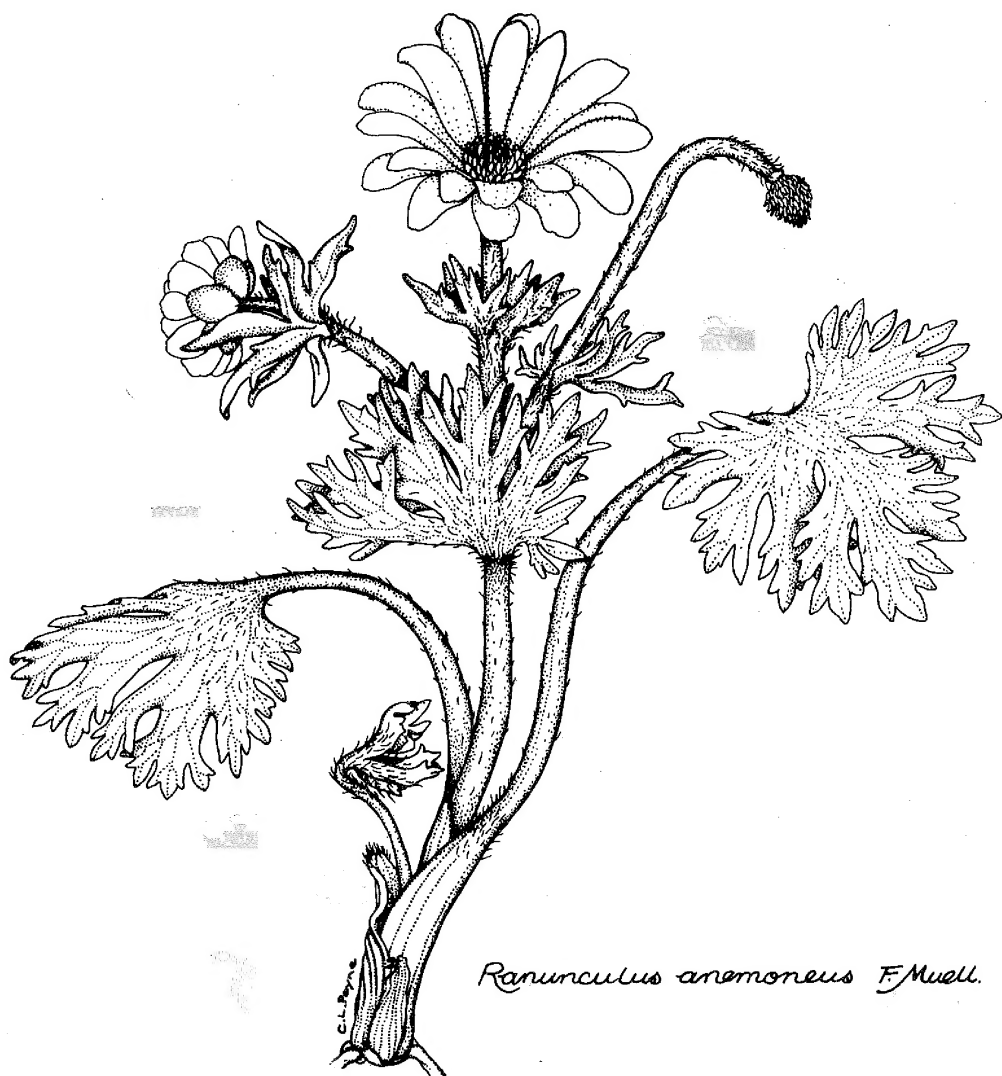




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WATTLE BECOME OF ACACIA?

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(This paper has also been submitted for publication in the International Group for the Study of Mimosoideae Bulletin, under the title, 'Should Acacia be Divided?'.)

Introduction

With over 1200 species Acacia is the second largest genus in the family Leguminosae (eclipsed by Astragalus). Unlike the proposed generic split of Eucalyptus which is essentially an Australian matter, the proposal by Pedley (1986) to divide Acacia into three genera has implications world-wide. Adoption of this proposal would mean that 96% of the Australian Acacia flora, totalling about 850 species (including many as yet undescribed), would require a name change to Racosperma. In Asia, Africa and the Americas another 150 or more species would have to change to Senegalia. Nomenclatural disruptions of this magnitude must be based on sound scientific evidence if taxonomy is to retain its credibility.

My purpose here is to briefly assess Pedley's evidence for splitting Acacia and to state my opinion regarding the proposed changes. In doing so I have considered not only the evidence which he presented but also some data acquired subsequent to 1986. While I am mindful of the economic and cultural implications of Pedley's proposal, my main concern is the correct interpretation of current scientific evidence.

The infrageneric nomenclature used here is that of Pedley (1978), unless otherwise stated. The term *Acacia sens. lat.* refers to the combined subgenera *Acacia*, *Aculeiferum* and *Phyllodineae*. *Acacia sens. str.* refers only to subgenus *Acacia*.

Classification of Acacia : Historical Perspective

Details of the classification history of Acacia are presented by Ross (1973) and Pedley (1987). These details will not be repeated here but in order to place the present discussion in context it is necessary to discuss briefly some aspects of this history.

Since Miller's (1754) original description of Acacia about 30 generic names have been applied to segregates of the genus. The generic limits were not clearly defined until Bentham (1840) restricted the name Acacia to mimosoid legumes with indefinite numbers of free stamens. Thus defined, Acacia, together with the monotypic African genus *Faidherbia* (which some workers place in Acacia, as *A. albida*), constitutes the tribe Acacieae, one of the five tribes of Mimosoideae (Elias 1981).

In 1842 Bentham produced his first classification of Acacia and followed this in 1864 and 1875 with two slightly modified schemes. These classifications differed mainly in the rank applied to the infrageneric groups. Basically, Bentham recognised six series defined primarily on vegetative characters (foliage and spinescence); inflorescences were of secondary importance; legumes were largely ignored. The six series recognised by Bentham were: *Gummiferae*, *Vulgares*, *Filicinae*, *Botrycephalae*, *Phyllodineae* and *Pulchellae*.

The first major challenge to Bentham's classification came from Vassal (1972). Using pollen data from Guinet (1969) and supplementing these with his own data (derived principally from seedling ontogeny, and seed and stipule characters) Vassal produced what he considered a phylogenetic classification in which three subgenera were recognised, namely, *Acacia*, *Aculeiferum* and *Heterophyllum* (=

TABLE 1. Major classifications of *Acacia sens. lat.* from Bentham (1875) to Pedley (1986).

Bentham (1875)	Vassal (1972)	Pedley (1978)	Pedley (1986)
ACACIA	ACACIA	ACACIA	
Ser Gummiferae	Sg Acacia	Sg Acacia	ACACIA
Ser Vulgares	Sg Aculeiferum	Sg Aculeiferum	SENEGALIA
	Sec Monacantha		
	Sec Aculeiferum	Sec Spiciflorae	Sec Senegalia
Ser Filicinae	Sec Filicinae*	Sec Filicinae	Sec Filicinae
	Sg Phyllodineae (syn Sg Heterophyllum)	Sg Phyllodineae (syn Sg Heterophyllum)	RACOSPERMA
Ser Botrycephalae		Sec Botrycephalae	
Ser Phyllodineae			
Sser Alatae		Sec Alatae	
Sser Continuae	Sec Uninervea		Sec Racosperma
Sser Brunioideae		Sec Phyllodineae	
Sser Uninerves			
Sser Plurinerves		Sec Plurinerves	
Sser Pungentes	Sec Heterophyllum		Sec Plurinervia
Sser Calamiformes			
Sser Juliflorae		Sec Juliflorae	
	----- ? -----	Sec Lycopodiifollae	Sec Lycopodiifolia
Ser Pulchellae	Sec Pulchelloidea**	Sec Pulchellae	Sec Pulchella

Abbreviations: Sec = Section, Ser = Series, Sser = Subseries, Sg = Subgenus.

* Formalised in Guinet and Vassal (1978).

** Section *Pulchelloidea* Vassal included mainly Bentham's Series *Pulchellae* and *Alatae* species.

Phyllodineae, fide Ross 1981). These subgenera broadly corresponded to groupings of Bentham's six series. However, some of the sections that Vassal recognised within the subgenera did not correspond well with Bentham's series. Vassal worked with only about 10% of the known species of the genus.

In 1978 Pedley produced his first classification of *Acacia*. In this work he recognised three subgenera (following Vassal) which comprised 10 sections (these corresponding to groupings of Bentham's series and subseries). Although this classification was not presented as a 'natural' scheme, it was a good attempt at incorporating the best aspects of Bentham's and Vassal's classifications into a single, useable scheme. According to Pedley (1987) he had by about 1972 become convinced that subgenus *Acacia* (series *Gummiferae*) warranted recognition as a distinct genus. Although this was not adopted in his 1978 classification he did informally advocate in 1981 that *Acacia* be divided into two genera, namely, *Acacia* and the genus 'Z' (i.e. *Zigmaloba*, which would have incorporated subgenus *Aculeiferum* and subgenus *Phyllodineae*). In his 1981 paper Pedley admitted that 'whether or not *Acacia* should be split is partly a philosophical question'. In his latest classification Pedley (1986) recognised three genera, namely, *Acacia*, *Senegalia* and *Racosperma*. These genera corresponded to Vassal's subgenera. Comparing Pedley's 1978 and 1986 works it is evident that few new data had been acquired in these intervening nine years. His decision to upgrade the rank of the infrageneric groups within *Acacia sens. lat.* appears to rest on his placing greater emphasis on certain data, especially pollen and biochemical ones. Pedley was also influenced by the then current trends (actual or proposed) to fragment other large groups, e.g. grasses, Papilionoideae, Caesalpinoideae and *Eucalyptus*. It appears, therefore, that although there had been no significant increase in data, there had been a significant change in Pedley's conceptual approach to taxonomic rank between 1978 and 1986. Much of his justification for recognising three genera centred on what had been the approach to rank in other large plant groups.

Table 1 shows the main classification of *Acacia* as relevant to the present discussion.

Pedley's Evidence for Recognising Three Genera within *Acacia sens. lat.*

Pedley (1986) summarised a large volume of data upon which his decision to subdivide *Acacia sens. lat.* was based. He considered that the characters of the pollen, the free amino acid composition of the seeds, the presence of stipular spines and phyllodes and the structure of the flowering 'system' were important in the classification of *Acacia*. Although he discussed other characters I will here mainly confine my comments to these 'important' ones, since these are the basis for Pedley's proposed dissection of *Acacia sens. lat.* A summary of these 'important' characters is given in Table 2.

(a) **Pollen.** Pedley's pollen evidence was derived from the detailed studies of Guinet (1969, 1979, 1981). Guinet examined over 1000 species of *Acacia* representing all major sub-groups of the genus, he also examined many species from other tribes of the Mimosoideae. Of all the characters used by Pedley I consider the pollen to be the most comprehensively surveyed and the best understood.

Guinet (1969) recognised three types of pollen within *Acacia sens. lat.*, namely colpate, porate and extraporate. Originally he thought that these types were confined to subgenus *Acacia*, *Aculeiferum* and *Phyllodineae* respectively and suggested that generic rank would be appropriate for the three groups. However, subsequent studies by Guinet and Vassal (1978) and Guinet (1986) showed that both porate and extraporate pollen occurred in a proportion of species in both subgenus *Aculeiferum* and *Phyllodineae*. Guinet (in press) is now of the opinion that *Acacia sens. lat.* is 'biphyletic' with the two groups having independent origins. The first groups comprised subgenus *Acacia* which Guinet (pers. comm.) feels should be afforded generic rank. The pollen of this group differs markedly from that of the other two subgenera in that it possesses colpate apertures and a columellar exine. This combination of characters occurs nowhere else within the combined tribes Acacieae-Ingeae except in *Calliandra sens. str.*¹ (Guinet, in press). The second group defined by Guinet comprised the subgenera

1 *Calliandra sens. str.* represent those species with 8-grain polyads (i.e. *Calliandra sens. lat.* with *Zapoteca* and the Asian-Madagascan species of *Calliandra* excluded).

TABLE 2. The distribution of characters considered 'important' by Pedley (1986: 234) in the classification of *Acacia*.

	Tribe <i>Acacieae</i>			Tribe <i>Ingeae</i>	
	<i>Acacia</i>		<i>Faidherbia</i> (<i>A. albida</i>)		
	sg. <i>Phyllodineae</i> (g. <i>Racosperma</i>)	sg. <i>Aculeiferum</i> (g. <i>Senegalia</i>)	sg. <i>Acacia</i> (g. <i>Acacia</i>)		
Phyllodes	Present or Absent	Absent	Absent	Absent	Absent
Stipular spines	Absent (Infrequently present)	Absent (very rarely present)	Present	Present	Present in <i>Albizia</i> (in part), <i>Calliandra</i> (in part), <i>Havardia</i> and <i>Pithecellobium</i> . Absent in 19 genera.
Prickles	Absent	Present or Absent	Absent	Absent	Present in <i>Albizia</i> (3 species only, Guinet pers. comm.). Absent in remainder of <i>Ingeae</i> .
Pollen (Guinet 1981)*					
- Aperture type	Extraporate (infrequently porate)	Porate (Infrequently extraporate)	Colporate	Porate	Colporate in <i>Calliandra sens. str.</i> (Guinet, in press). Porate in remainder of <i>Ingeae</i> except extraporate in some species of <i>Cojoba</i> , <i>Marmaroxylon</i> , <i>Obolanga</i> , <i>Zygia</i> and Genus 'D' (Guinet and Rico-Arce, in press).
- Collumellae	Absent	Absent	Present	Absent	Present in <i>Calliandra sens. str.</i> Absent in remainder of <i>Ingeae</i> .
- Exine ornamentation	Reticulate (rarely areolate)	Smooth	Smooth	Faintly areolate	Areolate or sometimes smooth.
Free amino acids (In seeds)**	2(3)	3,4,5	1	3***	0
Flowering system	See text.				

* Not all pollen attributes listed by Guinet are given here. See also Guinet (1986)

** See Pedley (1986) for definition of biochemical Groups 1-5.

*** *A. albida* seeds have the 'marker' amino acids of Group 3 except they lack S-carboxyethylcysteine (though this is present in small amounts in the seeds) Evans *et al.* 1977.

Aculeiferum and *Phyllodineae* which have pollen with porate (or extraporate¹) apertures and a granular exine. This pollen type occurs in all other genera of Ingeae, *Calliandra sens. str.* excepted. Guinet (in press) questioned whether the pollen difference between subgenera *Aculeiferum* and *Phyllodineae* are sufficient to warrant their recognition at generic rank.

(b) **Free amino acids of seeds.** Evans *et al.* (1977) and Guinet *et al.* (1980) presented data on free amino acids of seeds for about 120 species of *Acacia*. Evans subsequently supplied Pedley (1986) with data on an additional two species.

Five biochemical groups were recognised within *Acacia sens. lat.* Species of Group 1 were all from subgenus *Acacia* and were shown to be chemically distinct from species of the other four groups. Species of Groups 2-5 belonged to subgenus *Aculeiferum* and subgenus *Phyllodineae*. Pedley (1986) considered these latter four groups to be chemically related and that Group 3 (i.e. subgenus *Aculeiferum* plus three extra-Australian species from subgenus *Phyllodineae*) provides the basic pattern from which the other three were derived.

Pedley placed considerable weight on these biochemical characters. While not disputing the validity or significance of the data, it must be remembered that only about 10% of the genus was examined and there is a clear need for more chemical information on a wider sampling of species. Nevertheless, the species studied did represent many of the then-known major sub-groups of the genus, although section *Lycopodiifoliae* of subgenus *Phyllodineae* was an obvious omission.

(c) **Stipular spines.** Stipular spines occur in all species of subgenus *Acacia*. The combination of bipinnate leaves and spiny stipules is not unique to subgenus *Acacia* as implied in Pedley's (1986:241) key because *A. anarthros* and *A. moirii* subsp. *recurvistipula* (both subgenus *Phyllodineae* section *Pulchellae*) also have these characters. (This, however, does not necessarily imply a close relationship between the two subgenera.) Although Pedley (1986) stated the contrary, stipular spines do occur in at least one species of subgenus *Aculeiferum*. They may be present (although poorly developed) in *A. coulteri* from Mexico. In subgenus *Phyllodineae* spiny stipules occur in about 15 species of section *Phyllodineae*, two species of section *Pulchellae* and at least four species (undescribed) of section *Plurinerves*. One problem in using stipular spinescence as a taxonomic character is that in many Australian species at least the spiny stipules are present only on juvenile plants. For example, on biologically mature plants of *A. victoriae* Benth., often only the stipule bases remain, being represented by a pair of blunt protruberances at the base of the phyllodes; sometimes even the protruberances are lacking.

There are, therefore, some problems in using stipular spinescence alone to define major groups within *Acacia*. Nevertheless, it is clear from the work of Vassal (1972), Ross (1979), Pedley (1986) and others, that this is an important taxonomic character. In the tribe Ingeae spiny stipules are present in *Havardia*, *Pithecellobium sens. str.* and in some other species of *Albizia* and *Calliandra* (Nielsen 1981). The question remains, however, whether the stipules in these different groups are homologous.

(d) **Phyllodes.** Phyllodes occur in many species of subgenus *Phyllodineae* (absent from the bipinnate-leaved sections *Botrycephalae* and *Pulchellae*). Phyllodes are also absent from species of subgenus *Acacia* and subgenus *Aculeiferum*, although in the latter group there is a tendency towards phyllodisation in *A. willardiana* from Mexico (Vassal and Guinet, 1972). Elsewhere in the Mimosoideae phyllodes are known only from the tribe Mimosae where they are rare (Lewis and Elias, 1981).

Pedley (1986) discussed a possible evolutionary sequence for phyllodes in *Acacia*. I agree with him that for plurinerved species the 'oligoneurous' phyllode nervation pattern (Pedley's Figure 1B, C and E)

¹ Guinet's (1989) extraporate pollen was simply a polyad type with pseudocolpi (i.e. subsidiary colpi) present on the distal face of each grain. In several tropical Australian species both porate and extraporate grains are known to occur within a single polyad, e.g. *A. tropica* (Guinet 1986: fig. 2).

probably represents a primitive condition from which the 'microneurous' patterns were probably derived (Pedley's Figure 1D and G). However, I doubt that the latter gave rise directly to the uninerved phyllode (Pedley's Figure 1H, I and J). It can be just as easily argued that uninerved phyllodes arose from oligoneurous ones and that this has occurred more than once. Pedley considered that there was a fundamental division between plurinerved and uninerved phyllodes and suggested that this might be the basis for recognising subgenera within *Racosperma* (= subgenus *Phyllodineae*). While I agree that there are important differences between the plurinerved and uninerved condition, it is an oversimplification to classify Australian phyllodinous *Acacia* species as simply belonging to one or other of these two nervation types. For example, there are a number of species (especially Western Australian) which cannot be conveniently placed in either group as currently defined (e.g. *A. sulcata* and its allies), there are a number of groups of related species in which both uninerved and plurinerved species occur (e.g. *A. paradoxa*-*A. verniciflua* group, *A. jensenii*-*A. dictyophleba* group) and there are groups of species for which the nervation pattern has not even been described (e.g. section *Lycopodiifoliae*). There is a clear need to understand more fully the very complex nature of phyllode nervation patterns. The elucidation of these patterns and the establishment of their homologies is essential before meaningful statements can be made regarding the classification of subgenus *Phyllodineae*. (A study of *Acacia* phyllode nervation has recently commenced in Zurich.)

(e) **The flowering 'system'**. I must admit to being a little confused by Pedley's use of inflorescence characters. He regarded the structure of the flowering 'system' as important and proposed a simplification of the scheme which was originally presented by Robbertse (1974), namely, terminal panicles of heads, spikes or racemes giving rise to axillary heads or spikes (rarely racemes), which in turn give rise to axillary fascicles of spikes or racemes. Pedley did not, however, record the distribution of these inflorescence types among the major taxonomic groups of the genus. This is especially regrettable because Robbertse's study was based solely on African species of subgenus *Acacia* and subgenus *Aculeiferum*; it did not include any New World species of these subgenera or any Australian species of subgenus *Phyllodineae*. It is difficult, therefore, to see how this character could be weighted as important, since it apparently was not adequately surveyed.

Pedley stated that in subgenus *Acacia* a multibracteate involucre always occurs on the peduncles of species with capitate inflorescences but not on those with spicate inflorescences. This attribute was employed in his key to genera on p. 241. From my own brief encounter with New World acacias it is clear that this statement is incorrect on two accounts. Firstly, there are at least four Central American species of subgenus *Acacia* with spicate inflorescences that have peduncles possessing a multibracteate involucre, e.g. *A. brandegeana*, *A. californica*, *A. dolicocephala* and *A. gentlei*. Secondly, there is a group of subgenus *Acacia* species from Mexico with capitate inflorescences that have peduncles with a solitary bract in the position of the involucre, e.g. *A. glandulifera*, *A. schaffneri*, and others. A similar bract occurs on some species of subgenus *Phyllodineae* but it is not known if these bracts are homologous with the solitary bracts found in subgenus *Acacia*. Pedley regarded the solitary bracts of subgenus *Phyllodineae* as non-homologous with the multibracteate involucre of subgenus *Acacia*.

I am of the opinion that a proper understanding of inflorescences within *Acacia sens. lat.* is essential to a correct interpretation of relationships within this group. However, the available information is very inadequate and this situation must be redressed before sound decisions can be made concerning the fragmentation of *Acacia sens. lat.* Bract number, position and morphology are of particular importance.

Discussion

The decision whether or not to now accept the division of *Acacia sens. lat.* into three genera as proposed by Pedley (1986) is dependent upon the following considerations.

1. Is *Acacia sens. lat.* polyphyletic?
2. Does the available evidence permit recognition of higher order taxa within *Acacia sens. lat.* and if so, how many taxa?

3. What is the appropriate rank and name for higher order taxa that are recognised?
4. Is the name *Racosperma* validly published?

1. *Is Acacia sens. lat. polyphyletic?*

The answer to this question is fundamental to deciding whether or not *Acacia sens. lat.*, as currently defined, should be treated as more than one genus. Given our present inadequate knowledge of infrageneric groups within the genus (see below) and how these might relate to other genera of Mimosoideae, it is not possible now to provide a completely satisfactory answer to this question. Nevertheless, on the basis of current data there is evidence showing that within *Acacia sens. lat.* there exist at least two main phyletic assemblages, namely, subgenus *Acacia* vs subgenus *Aculeiferum* and *Phyllodineae*. Pedley (1986, 1987a, 1987b) suggested that *Acacia sens. lat.* was derived from the tribe Ingeae and expressed the opinion (without supporting evidence) that subgenus *Acacia* has affinities with *Calliandra* and *Pithecellobium* while the subgenera *Aculeiferum* and *Phyllodineae* have affinities with *Paraserianthes*. Guinet (in press) argued that while *Acacia sens. lat.* and the Ingeae have broad close relationships, the pollen characters suggest that *Acacia sens. lat.* must be viewed as an early offshoot of the tribe Mimosae (from around the *Piptadenia* group). He supported the independent derivation of subgenus *Acacia* and the combined subgenera *Aculeiferum* and *Phyllodineae*, describing subgenus *Acacia* as having very similar pollen to *Piptadeniopsis* (tribe Mimosae), and sharing some important characters with *Calliandra sens. str.* (tribe Ingeae). He also considered subgenus *Aculeiferum* as having some important pollen characters in common with *Archidendropsis* (tribe Ingeae). The notion of independent origin for subgenus *Acacia* compared with that of subgenera *Aculeiferum* and *Phyllodineae* is further supported by recent serological studies by Brain (1987). His work, however, was based on a relatively small sample size (37 species). Nevertheless, the techniques employed look promising and it is hoped that the work will be expanded to include the more critical species from the latter two subgenera as well as from the tribes Ingeae and Mimosae.

Therefore, although phylogenetic relationships have not been satisfactorily elucidated, present evidence suggests that *Acacia sens. lat.* is not monophyletic. However, as will be discussed below, this alone is not sufficient reason for recognising distinct genera within the group at the present time.

2. *What higher order taxa can be recognised within Acacia sens. lat.?*

Of the data available to Pedley (1986) two characters in particular, namely pollen and free amino acids, indicate that fundamental differences exist between subgenus *Acacia* and the combined subgenera *Aculeiferum* and *Phyllodineae*. These data also show the latter two subgenera to be closely related. This grouping of the three subgenera is supported by recent biochemical studies by Brain (1987) and Conn et al. (in press). In fact, Pedley (1981) proposed such a two-way split of *Acacia sens. lat.* by suggesting the genus be divided into *Acacia* and the genus 'Z' (i.e. *Zigmaloba*). One problem in adopting this approach now is whether or not two groups is the optimal number worthy of generic status. Pedley (1986) advocated the recognition of three genera. However, as will be discussed below, current evidence suggests that within each of these genera/subgenera there exist a number of discrete higher order taxa and future studies may well reveal still others. What rank (genus, subgenus, section, etc.) should be applied to these taxa is largely a matter of subjective judgement. Nevertheless, before considering questions of ranking, the taxa themselves first have to be clearly defined and their phylogenetic relationships established. It is my opinion that presently these studies are too incomplete to permit informed taxonomic judgements as the following examples will illustrate.

Studies in progress of Mexican species of subgenus *Acacia* by Seigler and others are revealing the existence of a number of discrete species-groups in that region. For example, *A. rigidula* and its allies (Lee et al., 1987) are very distinct on account of their spicate inflorescences with 4-merous, white flowers. Another distinctive group recognised by Seigler (pers. comm.) is *A. constricta* and its allies. Unlike other species of subgenus *Acacia* with globular flower-heads, members of this group have only a

single bract on their peduncle instead of the usual multi-bracteate involucre. Pedley (1986) must have been unaware of *A. constricta* and its allies because they will not key out to *Acacia sens. str.* in his 'Key to Genera'. These examples illustrate that within the Americas there is still much systematic research on *Acacia* needed; this is especially true when considering subgenus *Aculeiferum* (see below).

In Africa, the other major centre of diversity for subgenus *Acacia*, most of the taxonomy at the species level has been resolved. However, there has not yet been achieved a satisfactory grouping of species into meaningful higher order taxa (Ross 1979). One African species has posed particular problems, namely, *A. albida*. Both Ross (1979) and Malre (1987) included it in *Acacia*, the latter author creating subgenus *Faidherbia* to accommodate it. Many other workers regard *A. albida* as comprising a monotypic genus, *Faidherbia* (Vassal 1981, Brain 1987, Gulnet 1964 and in press), although the question of its tribal placement (Acacieae or Ingeae) is not yet resolved.

One of the major constraints in assessing the classification of *Acacia sens. lat.* is the paucity of data concerning the probable 100 or so species of subgenus *Aculeiferum* from the New World. The last taxonomic account of this group in its entirety was that of Benthams (1875). In view of this fact, and in addition to Gulnet and Vassal's (1978) suggestions that (1) this subgenus contains the highest proportion of unspecialised characters for the genus and (2) that differentiation of the genus began in what is now tropical America, it is essential that the New World species of subgenus *Aculeiferum* be properly examined before decisions are made regarding the fragmentation of *Acacia sens. lat.*

One group of subgenus *Aculeiferum*, namely, section *Filicinae*, has received specific attention in a number of recent studies. This section has been shown to have an unusual combination of characters, i.e., no prickles, spines or foliar glands, poorly differentiated pollen and unusual free amino acids in their seeds. From my own limited field (Mexico) and herbarium (Kew) experience of this group the species have a distinctive facies. Britton and Rose (1928) in their (excessive) splitting of New World *Acacia*, treated the *Filicinae* as a distinct genus, *Acaciella*. Pedley (1987a) considered that the group 'could well be treated as a distinct genus'. Gulnet (in press) regarded it as a distinct group giving its nearest affinities to members of the tribe Mimoseae. The ultimate resolution of the taxonomic status of this group remains unresolved.

Within subgenus *Phyllodineae* there has been considerable work on taxa at the species level and below but very little directed at the resolution of higher order taxa within this large (+ 850 species), extremely diverse group (e.g. Vassal 1972, Pettigrew and Watson 1975, Pedley 1978 and 1986). My own work shows that because of major gaps in our knowledge of certain morphological characters (especially inflorescence structure and phyllode nervation) it is difficult to make meaningful statements concerning phyletic trends or natural groupings of taxa. Pedley (1986) suggested that phyllode nervation (uninerved vs plurinerved) might form the basis for recognising subgenera. I agree that nervation is an important character. However, because it is so incompletely understood, it is difficult to know how to interpret this character in a phylogenetic, and thus classificatory, sense. For groups currently recognised within subgenus *Phyllodineae* the relationships of the sections *Pulchellae* and *Lycopodifoliae* remain unclear (Pedley 1986). Vassal (1972) established section *Pulchelloidea* to accommodate species of section *Pulchellae* and certain phyllodinous taxa. Although Pettigrew and Watson (1975) found no support for section *Pulchelloidea* they did suggest that the bipinnate-leaved *Pulchellae* species might be related to certain plurinerved phyllodinous taxa in the same way as section *Botrycephalae* is related to certain species within section *Phyllodineae*. Clearly, there are many uncertainties and deficiencies of data which place constraints on our ability to recognise and define meaningful taxonomic groups within subgenus *Phyllodineae*. Much work is required in order to correct these deficiencies.

From the above discussions, it is seen that within each of the three subgenera of *Acacia sens. lat.* it is possible, using available data, to recognise a number of discrete higher order taxa. However, until the New World and Australian species have been examined more thoroughly it is not possible to suggest how many such taxa exist, let alone what rank should be applied to them. As a minimum, I consider that an understanding of the inflorescences (especially bracts, their arrangements and homologies) and

the phyllode nervation patterns is imperative. The application of numerical methods (e.g. cladistics, phenetics) in assessing the taxonomy of *Acacia sens. lat.* is called for, although, given the size of the genus, this will be a daunting task. Nevertheless, unless a split of *Acacia* is founded on good scientific bases, it will not be possible to convince the many users of the taxonomy to adopt a new scheme, and thus, a new set of names.

3. What rank should be applied to higher order groups within *Acacia sens. lat.*?

The application of taxonomic rank is largely a subjective process and the decisions reached subjectively can only be as sound as the scientific data are complete. The question of the appropriate rank for higher order groups within *Acacia sens. lat.* must be viewed in the context of the systematic placement of tribe Acacieae within the subfamily Mimosoideae. Insofar as the Acacieae is concerned its definition, and that of related tribes, is equivocal and their interrelationships largely conjectural. For example, Pedley (1986) suggested that the Acacieae might be derived from the Ingeae and that the two tribes 'probably should be united'. Guinet (in press), on the other hand, while recognising the broad close relationship between these two tribes, viewed the Acacieae as an early offshoot of the Mimoseae. Given that future studies may provide evidence for redefining these tribes, part or perhaps even all of the Acacieae could ultimately be realigned with one of these other tribes in whole or in part. Everyone will agree that treatment of *Acacia sens. lat.* should be compatible with decisions concerning generic rank made within the tribe in which it will ultimately reside. If, for example, the Acacieae were combined with the Ingeae it is impossible to say how many genera would result from the application to *Acacia sens. lat.* of rank criteria currently adopted within the Ingeae. (Generic limits within the Ingeae are currently under review, see Nielsen 1979, 1979a, 1981, Nielsen *et al.* 1983, 1983a, 1984, Rico Arce 1987, Guinet and Rico Arce 1987). Pedley himself recognised that the inclusion of Acacieae within the Ingeae would necessitate some splitting of *Acacia sens. lat.* However, I suspect the number of genera which would result would be greater than the three currently proposed by Pedley.

Considering the above, I believe it is prudent to retain the current infrageneric rank for groups within *Acacia sens. lat.* until they can be properly defined and then evaluated in the light of a more complete understanding of the phylogeny of the Acacieae, Ingeae and Mimoseae. This conservative approach may avoid the unnecessary changing of generic names for more than 1000 species world-wide.

4. Is the name *Racosperma* validly published?

Pedley (1986:239) described the nomenclatural history of the name *Racosperma* and concluded that the genus was validly published by Martius in 1835. Acceptance of Pedley's conclusion depends upon whether the 1835 publication can be (indirectly) connected with Martius' 1829 listing of *Racosperma* where it was indicated that the name was based on *Acacia* (section) *Phyllodineae* DC. Pedley considered that the connection was established by Martius' (1835) designation '*Racosperma* Mart.'. I am sure that some nomenclaturalists would regard it debatable as to whether this is indeed an indirect reference of the name *Racosperma* to a validly published description. If not, then the name *Racosperma* must date from Pedley (1986), since, to my knowledge, the name has not been previously taken up. If this is accepted and if we wish to use the name *Racosperma*, then it must be conserved against earlier names that are considered as belonging to the same genus. While this action would create no problems if *Acacia* is split into three genera as proposed by Pedley, the situation is different if two genera are recognised. In the latter case *Racosperma* would have to be conserved against names like *Senegalia* Rafinesque (1838) and *Acaciella* Britton and Rose (1928) which were used in the North American Flora (Britton and Rose, 1928). It is unlikely that a proposal to conserve *Racosperma* against these two names would be successful.

Conclusions

Any splitting of *Acacia* will undoubtedly cause major nomenclatural disruptions world-wide and especially in Australia where this genus represents our largest group of vascular plants. Nomenclatural changes of any sort have their attendant costs, not only in monetary terms but also in the ability of people to communicate concerning biological diversity. It is therefore imperative that changes of the

magnitude proposed by Pedley be based on the best interpretation possible of sound scientific evidence.

Current evidence suggests that *Acacia sens. lat.* is probably polyphyletic with subgenus *Acacia* and the combined subgenera *Aculeiferum* and *Phyllodineae* having independent origins. However, the relationship of these two groups to other genera of Mimosoideae is not clear. Therefore, if *Acacia sens. lat.* was split today, the minimum number of genera to be recognised would probably be two. Indeed, this is what Pedley (1981) suggested. However, in 1986 he opted for three genera, using basically the same data set.

In summary, I consider it inadvisable to undertake any splitting of this vast genus at this time for the following reasons:

- (a) Except for pollen data, the evidence for dividing *Acacia sens. lat.* is inconclusive and/or incomplete.
- (b) Further studies are required to ascertain how many higher order taxa can be recognised within *Acacia sens. lat.* New World species of subgenus *Aculeiferum* and Australian species of subgenus *Phyllodineae* are in particular need of investigation. Studies of inflorescences and phyllode nervation patterns to ascertain character homologies would yield particularly useful data.
- (c) The attribution of rank to higher order taxa should be undertaken following resolution of the taxonomic status and affinities of the tribe Acacieae, relative to genera within the tribes Mimoseae and Ingeae.
- (d) Pedley's justification for recognising three genera was based on what had been the approach to rank in other large plant groups and on Williams' (1964) 'Index of Diversity'. These are not convincing justifications, for genera should be defined on the basis of evolutionary history and recognised by distinct morphological discontinuities which reflect underlying chemical, cytological/karyological, etc. differences.
- (e) The validity of the name *Racosperma*, dating from Martius (1835), is equivocal and the many names recently made available in *Racosperma* by Pedley (1987c-f, 1988) are equally equivocal nomenclaturally.

It is therefore considered ill-advised to accept the split of *Acacia* as proposed by Pedley. Were this adopted now, it might lead to a situation where we would expect people to adjust to the split of one of the world's largest genera into three genera and then in the near future possibly expect them to adopt further generic name changes because of fewer or additional genera, or because of the possible need to replace the name *Racosperma* on nomenclatural grounds.

Finally, it may be said that Pedley's proposal is premature, the conclusion reached by a majority of mimosoid specialists who discussed this subject at the IBC, Berlin, in 1987 (Maslin 1987). In this paper a number of fields of study were suggested which could yield the necessary data upon which more informed judgements might be made concerning the taxonomic status of *Acacia sens. lat.*

Acknowledgements

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'TAZETTA' NARCISSUS NATURALISED IN WESTERN AUSTRALIA

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The genus *Narcissus* in Western Australia is a classic example of a group of garden escapes. Most plants are found around old settlement sites, railway lines, paddocks, rubbish tips and road verges, chiefly in wet sites. Seed is not produced and clones are formed via bulbils in these suitable sites and spread by soil disturbance, usually by mechanical means.

Because of its long history of cultivation, selection, hybridisation and naturalisation in Europe, members of the genus provide numerous complex taxonomic problems. The author has been collecting and studying living material of the genus, and has been able to compare these with vouchered European material used in the '*Flora Europea*'.

Hewson (1987) in her treatment of *Narcissus* for the '*Flora of Australia*' listed two taxa occurring in Western Australia, namely *N. tazetta* L. and *N. pseudo-narcissus* L.. However, the situation is considerably more complex.

Species and Other Taxa Occurring in Western Australia

- 1 *Narcissus tazetta* L. ssp. *tazetta*
This species has a long history of cultivation and contains numerous forms selected during this period. The common form naturalised in Western Australia has strongly scented large flowers with a yellow corona, narrow tepal lobes (12-15 mm, 8-9 mm wide) which only overlap at the base. This form appears referable to *Narcissus tazetta* var. *polyanthos* Baker.
Collections: Brixton Road, Perth, G.K. 3985; Clackline, G.K. 3970; Bunbury, G.K. 2779; Nanga, G.K. 6157.
- 2 *Narcissus tazetta* cv 'Erlcheer'
An old cultivar with doubled flowers, rarely found, chiefly around old farmhouses, forestry settlements and railway sidings.
Collections: Clackline, G.K. 5177; Greenough, G.K. sn; Wollaston College, Perth, G.K. 6177.
- 3 *Narcissus tazetta* ssp. *aureus* (Loisl.) Baker
The commonly cultivated form known as 'Soleil D'Or'. Occasionally found as an outcast on road verges and swampy flats in the Perth metropolitan area.
Collections: King's Park, Perth, G.K. 3976; Welshpool Road, Perth, G.K. 7097.
- 4 *Narcissus tazetta*
The remaining collections of *N. tazetta* are a series of forms with strongly to mildly scented flowers, with acute overlapping perianth lobes. Corona colour varies from yellow to pale cream. Perianth length/width ratios are approximately equal.
Collections Brixton Road, Perth, G.K. 3985; Bunbury, G.K. 2779; Lakes, G.K. 3970; Rottnest Island, G.K. 3980; Nanga, G.K. 6158; Welshpool, Perth, G.K. 7096; Mt Barker, G.K. 6403; Boyanup, Royce 4345.
- 5 *Narcissus papyraceus* Ker-Gawler
A small *Narcissus* with slender glaucous or green leaves (to 260 mm long but only 7-9 mm wide, compared to 16-22 mm with *N. tazetta*) and pure white strongly scented flowers.
Collections: Mt Eliza, King's Park, G.K. 5002; Spencer's Brook, G.K. 3968; The Lakes, York Road, G.K. 3969.

A number of intermediate forms between this species and *N. tazetta* are also known, usually having a pale yellow corona and larger leaves.
Collections: Mt Brown, Perth, G.K. 10204; Brixton Road, Perth, G.K. 3984.

The last two species are not *tazetta* group, but are included for interest.
- 6 *Narcissus jonquilla* L. (Jonquill)
A hybrid derivative of this species is established in swampy grassland on a road verge in the Busselton area.
Collection: Caves Road, G.K. 9231.
- 7 *Narcissus pseudo-narcissus* L. (Daffodil)
Found in swampy soils on old farmland.
Collections: Yornup, G.K. 4013; Scarp Road, G.K. 11094.

Preliminary observations in Adelaide and Melbourne suggest that similar complexities occur in these states, but collections are (as usual) poor.

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CONTINENTAL DRIP - A THEORY OF THE SHAPE OF CONTINENTS

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* This is a close-knit group of freelance biologists, membership being only by invitation from the President (who isn't me).

Introduction

In the last 30 years or so, geologists and geographers (not to mention geophysicists) have come to accept the theory of Continental Drift as an adequate explanation for why our continents are where they are. The details of this theory are now well-known to all members of the scientific community, in spite of the fact that a long time elapsed between the first serious proposal of the theory by Wegener (1929) and the final acceptance that the continents are part of floating plates that can move.

Now, it seems important for me to carefully note here that biologists were among the first scientists to consider this idea seriously. After all, it was about the only realistic theory that could possibly hope to explain the past and present known distribution of our plants and animals. Discerning biologists have continued to be in the forefront of ideas in this area, for example with the continued debate over panbiogeography and vicariance biogeography (see Craw and Weston 1984, Humphries and Parenti 1986). Geologists and geographers seem to merely follow in our wake, picking up the pieces and claiming them as their own.

Well, it is clear to me that there is one factor that has been consistently ignored in these discussions - the **shape** of our land masses. Everyone is so pre-occupied with worrying about **where** the various bits of land were, and **when**, that they are over-looking this fundamental aspect of all of our land areas. It is important, in the light of the historical precedents outlined above, that earnest biologists quickly start to consider seriously all new ideas pertaining to this problem, so that we can unequivocally claim to have believed them first.

With this in mind, I would like to discuss a little-known geographical idea concerning the shape of continents, which I believe has enormous scientific explanatory power - Continental Drip.

Continental Drip

As far as I know, this revolutionary idea was first proposed in 1973 by Ormonde de Kay. It appears to have lain dormant since then, and not to have received the attention that it so richly deserves. This has been particularly true among Australian biologists, although this is perhaps understandable, as the Australian continent provides some of the few pieces of data that are not easily explained by this theory (see below).

As de Kay (1973) defines it:- 'continental drip is the tendency of land masses to drip, droop, sag, depend, or hang down', rather like the wet paint on graffiti. The evidence for this theory is the same as that originally proposed for continental drift - you simply have a look at a map (try Figure 1).

Let's start with the major land masses. The shape of both South America and Africa are classic examples of drip at its grandest level - extensive land areas with large tops and tapering bottoms. These are very clean drips, with few distracting minor projections to mar the outline. Greenland is another good, although smaller, example of this clean type of drip.

This is not true of North America, however. As well as the expected broad top and tapering drippy bottom, there are classic minor drips dangling tantalisingly down on either side:- Florida in the east and Baja California in the west. These minor types of drip are a very common feature of our land masses, and are therefore a more interesting geographical feature, as they undeniably confirm the theory of continental drip.

Take Europe, for example. There are many drips in this area:- Scandinavia, the Iberian peninsula, Greece, Italy, the Crimea - all dripping exquisitely down. As noted by de Kay (1973), these drips also illustrate an important phenomenon about minor drips - these drips are not all vertical. For example, Scandinavia and Iberia drip southwest, while Greece and Italy drip southeast. De Kay explains this in terms of continental drift, as these areas are on different plates. However, this seems to me to be a retrograde step - we need to be bolder in generating explanatory hypotheses.

As an example, it seems to me that it is equally likely that this phenomenon is a political effect, with Scandinavia and Iberia leaning to the left and Greece and Italy leaning to the right. This is (as far as I know) a hitherto unpredicted relationship between geography and politics, and as such it would be a major new advance in our understanding of both politics and geography. This hypothesis is (at least in theory) testable, as all we would have to do is:-

- 1) change the geography and see if the politics change appropriately, and
- 2) change the politics and see if the geography follows suit.

The former test may be easier than the latter one (at least in terms of the time needed to observe the predicted change), but the latter test may be easier to fund (potential international government funding bodies that come to mind are the CIA and the KGB).

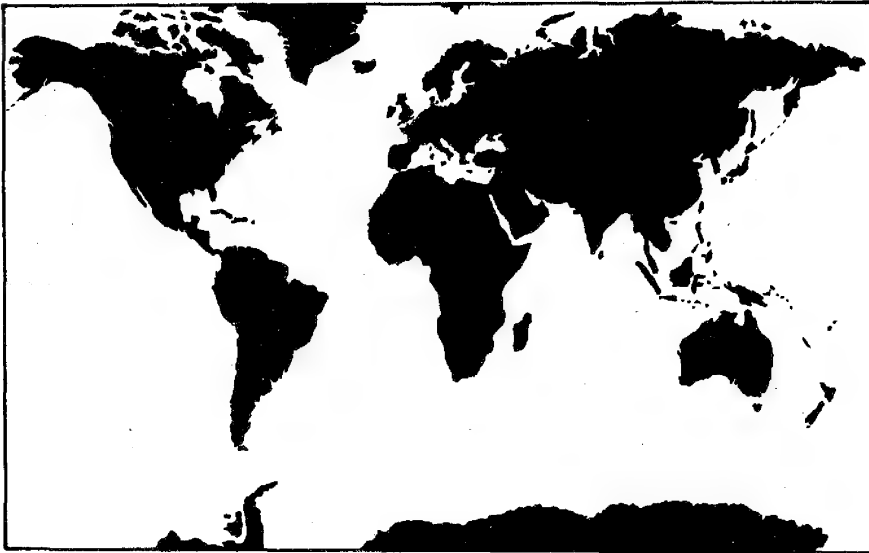


Figure 1.

As for the Asian continent, drip is extremely pronounced along its southern and eastern coastlines. For example, the Arabian peninsula, India, the Malay peninsula, Indochina, Korea, and the Polustrov Kamchatka peninsula are all textbook examples of minor drip. This may appear to invalidate the theory outlined in the last paragraph, as Indochina distinctly droops to the right, in spite of the political tendencies. However, as an ad hoc addition to the hypothesis, it is possible that politics and geography are more closely related on some parts of the globe than on others. For example, marxist politics is a much more recent phenomenon in some areas than in others. From this point-of-view, the Indochina

region may prove to be an interesting test of the hypothesis, as we may predict that the drip will soon begin to drift noticeably to the left (although see below).

As a further effect of continental drip, de Kay (1973) notes that 'we would expect earthquake-free islands to extend ... north-south, and to lie south of large land masses from which they have dripped'. The confirmatory evidence for this prediction is overwhelming. Even a cursory glance at a map (Figure 1) shows:- Sicily below Italy, Crete below Greece, Sri Lanka below India, Sumatra below the Malay peninsula, Hainan Dao below China, Taiwan below Korea, the Japanese islands below the Polustrov Kamchatka peninsula, Tasmania below Australia, Baffin Island below Greenland, Newfoundland below Labrador, and Tierra del Fuego below South America. Only a Philistine could fail to be convinced by this weight of evidence.

Of those islands that are not below a large drip, many still retain the characteristic north-south orientation as a result of their origin as drips. Classic examples are:- Madagascar, Borneo, the Philippine islands, Sulawesi, the New Zealand islands, the British islands (the originals, not all of the colonies), and Novaya Zemlya. The interesting question here is, of course:- Where have they dripped from? Perhaps there are a number of 'lost continents'? This line of thought leads to many pleasing speculations, and it is at least a testable hypothesis. The important point, however, is that their drip origin is beyond doubt.

Finally, as a coup de grace, we may predict from continental drip the existence of a Great South Land. If the land masses on Earth are dripping, then they must ultimately collect in a land 'pool' around the South Pole. At last, we have a convincing explanation for why Antarctica is where it is, and why there is no equivalent land mass at the North Pole. Geographers need have sleepless nights no longer.

Furthermore, we now have convincing evidence that north really is 'up' and that south is 'down'. At last, cartographers have a really good reason for drawing maps the way they do - it is the only correct way of representing the irrefutable force of drip. This point alone seems to be a sufficient justification for more widespread consideration of this theory among the scientific community.

So, I believe that we have here a truly scientific theory (*sensu* Popper 1968). It coherently explains all (or almost all, see below) of the known geographical facts (e.g., major drip, minor drip, islands) with a minimum of assumptions; it explains a number of facts that have not been explainable by any competing geographical theory (e.g., Antarctica, maps); and it is testable (at least in theory) because it predicts many new observations that may be made (e.g., the relationship between politics and geography, lost continents).

Discussion

This leads us inevitably to consider what we should now do to further investigate this remarkable theory. It seems to me that there are two areas that need immediate attention, if the theory is to gain more widespread acceptance among respectable scientists (other than ourselves).

Firstly, we need to explain the exceptions to our rules. These can be conveniently grouped into three categories:-

- 1) peninsulas that run north from their attached land mass (e.g., the Yucatan peninsula, Jutland, and Cape York and the Kimberleys of Australia);
- 2) islands that run east-west and are not below a land mass from which they have dripped (e.g., Iceland, Java, and New Guinea); and
- 3) the islands of the Pacific, which seem to have been spattered rather than dripped.

As a starting point for an investigation, it is perhaps worthwhile to note that many of these anomalies occur in the Australasian region - in other words, this area is not as drippy as it should be. This, of course, may not be entirely a bad thing, especially in comparison to the more effete continents of the Old and New worlds. However, it is obviously of great personal interest to us to investigate this phenomenon. The phenomenon was, indeed, noted by de Kay (1973), who also pointed out that 'this strange land ... once seemed to defy the laws of zoology and botany as well'. He proposed that, due to

its more recent origin as a continent (in terms of continental drift), 'it may simply not have been around long enough to show the more pronounced effects of drip'. This hypothesis is, naturally enough, easily tested - we simply wait. However, as a more active pursuit, it seems to me that a novel testable prediction from our theory is that there might be some hitherto unsuspected relationship between those areas that appear to be exceptions to the rule (i.e. they have some historical relationship that we have been overlooking). From a biological point-of-view, we could test this prediction by looking for close relatives of the flora and fauna of Australia in areas that we have previously ignored (e.g.. Yucatan, Jutland, Iceland; and perhaps also Britain and Novaya Zemlya). Perhaps ABRS should be encouraged to fund such a study before its work can be considered complete - I, for one, would be quite interested in the field work component of a collaborative project.

The second area that needs immediate attention is, of course, some sort of explanation for why continental drip occurs. After all, continental drift was not accepted until the mechanism of plate tectonics was devised; and I can see no reason why continental drip should be any different in this respect. De Kay (1973) suggests three possible explanations:-

- 1) a palaeomagnetic force centred in Antarctica;
- 2) a side effect of the Earth's rotation; and
- 3) a by-product of lunar attraction.

There are presumably many more possible theories, and I leave it as an exercise for the student to devise tests for each of these possibilities - after all, I'm only a botanist, not a geophysicist.

Acknowledgements

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THE ROULEAU CARD INDEX TO SPECIFIC EPITHETS

Karen Wilson

Ernest Rouleau will be known to most botanists as the compiler of the one-volume '*Guide to Index Kewensis*' (published 1970), a very useful guide that lists all occurrences of a generic name in the numerous parts of '*I.K.*'

What is not generally known is that he also compiled a card index to the occurrence of all epithets in '*I.K.*' up to 1975. The epithets are arranged alphabetically, with each occurrence in a genus (as given in '*I.K.*') listed beside it. As Dick Brummitt wrote in a note to Kew staff about this index, 'It could have nomenclatural significance in finding the earliest creation of a *nomen novum* under Art. 72 when a later homonym is transferred to another genus.'. I myself found it useful in checking botanical usage of epithets beginning with the Greek 'glyc-'.

This index is in a cabinet in the '*Index Kewensis*' room at Kew and may be consulted by staff and visitors by arrangement. Once the whole of '*I.K.*' is databased and corrected, this index will be redundant since

virtually any individual word in 'I.K.' will be able to be searched for. However, this database version will not be available for some time yet.

'INDEX NOMINUM GENERICORUM' CARDS: DON'T THROW THEM OUT

Karen Wilson

Dick Brummitt has pointed out that entries in the original 'I.N.G.' card index often contain more information than those published in the later book form of 'I.N.G.'. He said, " *Index Nominum Genericorum* " was started in card index form in 1955 and provides an invaluable guide to publication of generic names and their typification. New batches of cards were published at regular intervals, to be filled in to the existing set. In 1979, however, when all groups of plants (including cryptogams and fossils) were considered reasonably complete, the whole lot was reproduced in book form in three volumes. Most of us now use the book form, which is easier to consult, and the cards tend to be neglected. However, in two cases I have had to deal with recently - *Peristrophe* and *Rostellularia*, brought to my notice by Robyn Barker and Vicky Graham respectively - there is very much more information on the cards than in the book form, including first lectotypifications (surprisingly not even mentioned in the books) and in one case a specific combination not taken up in 'I.K.'."

He also pointed out that, between 1955 and 1979, 'replacement' cards were issued when new information on a genus was found. However, in such cases both the original and the new card for a genus should be consulted in case the original bore information (such as a first lectotypification) not mentioned on the second. Unfortunately, this may be impossible with many sets of 'I.N.G.' cards since many institutions will probably have discarded the original card when a second 'corrected' card was received.

SEBASTIAN SCHAUER, AN OVERLOOKED BOTANIST

Joy Thompson

National Herbarium of New South Wales

It has come to my attention that I am, perhaps, alone among Australian botanists in being familiar with a work by Sebastian Schauer. It came as a surprise to me when colleagues, and a referee, assumed that I was inconsistent in my references to Schauer, whereas I was referring to two different authors.

My *Leptospermum* work, though not yet published, was written before the relevant volume of Staffeu and Cowan was available. I have now consulted this work and find, to my surprise, that those remarkable men dealt thoroughly with Johannes Conrad Schauer but, though knowing of Sebastian Schauer's existence, knew little more about him.

Sebastian Schauer wrote a "*Kritische Revision . . . der Gattung 'Leptospermum' "*", published in '*Linnaea*' 15: 409-442 (1841). This is a publication of significance that, as it ambitiously tries to tie in the names used in European horticulture, has been a cross for me to bear. It is wordy, and in German, but references there to '*meines Bruders*' indicate that Sebastian was a brother of Johannes. The many new species in the '*Kritische Revision*' are credited there to S. Schauer (although they appear in '*Index Kewensis*' as of Schau.) except for a single one that is credited instead to L. Schauer. With some hesitation I have accepted the 'L' as a misprint for the German 'S', being reluctant to impose yet another Schauer on botanical literature.

ASBS BUSINESS

SUBSCRIPTIONS TO ASBS FOR 1989

Don Foreman

Subscriptions to ASBS for 1989 are now due. I would like to thank all those people who have made my life a little easier and have already paid their subs.

Rates for 1989 are:

\$16.00 if paid by end of March

\$20.00 thereafter

Full-time Students \$12.00

Occasionally bank cheques arrive on my desk with no indication who they are from. I would ask people paying by bank cheque to make sure their name and address is included with the cheque. Also I have on occasions had to trace direct transfer payments.

By now everyone who owed subscriptions from previous years should have been contacted. People owing subscriptions for 2 years become unfinancial and are deleted from the mailing list.

There is now a year date at the bottom of the address label on the newsletter envelop which will indicate your current financial position. 1989 means 1989 subs have been paid. 1988 means 1989 subs have not been paid.

REMINDER : 12TH GENERAL MEETING 28 JUNE 1989

Barry Conn

The 12th General Meeting of the **Australian Systematic Botany Society Incorporated** will be held at 6.00pm on the 28th June 1989 at the Women's College, University of Sydney, New South Wales.

Any member wishing to place an item(s) on the agenda should notify the Secretary (Dr B.J. Conn) in writing by the 14th June 1989.

Council Elections - 1989-1990 Term

In accordance with the Constitution of the Society, nominations are called for all positions on the Council for the 1989-1990 term of office: President, Vice-President, Secretary, Treasurer and 2 Councillors.

Each nominee must be proposed by two members and his/her acceptance of nomination must accompany the nomination itself. Nominations must be on the form provided or on a facsimile of that form. Forms were sent out recently.

With the exception of the current President, Dr Barbara Briggs, and the current Vice-President, Dr Judy West, the present officers are all available for and willing to be re-elected for another term of office. Barbara and Judy have both served 2 consecutive terms in their respective positions and are ineligible for re-election to the positions they currently hold.

All nominations must be in the hands of the Secretary by Wednesday 3 May, 1989.

If there are more nominees for the position than the position requires, Ballot papers will be sent out by the 17th May and the results of the elections will be announced at the Society's General Meeting at the **Plant Systematics in the age of molecular biology Symposium** on the 28 June 1989 at Sydney.

'FLORA OF CENTRAL AUSTRALIA'

Barbara Briggs

Reed Books has informed ASBS that they wish to remainder their stock of this '*Flora*' to the retail trade. ASBS had the option of acquiring this stock but Council believes that it would not be a financial proposition to buy these copies, particularly since sales by the Society would be in competition with retail sales at the discount price. (ASBS has already received royalties on this stock.)

Copies on sale at lower prices in bookshops can be expected. Unfortunately also there is no prospect of Reeds proceeding with the second edition for which manuscripts were prepared some years ago.

PERSONAL NEWS

Obituary - Stella Grace Maisie Carr (1912-1988).

Maisie Carr B.Sc. M.Sc. (Melb) (nee Fawcett) died on 9th September 1988 leaving behind an enviable publication record (over 70 papers, 2 still in press, 5 books), a considerable amount of unpublished scientific and historical work, a large circle of colleagues, friends and former students and not a few enemies. She was born in Footscray, a heavily industrialised western suburb of Melbourne and after primary school (Hyde Street, Footscray, dux in 1924) she attended (1925-8) Melbourne High School (MHS), then co-educational until 1927. Until 1928, the only science subjects taught to girls were Mathematics and Physics. In her last year she took Geology. She became a pupil teacher (at Hyde Street, Footscray). After three years of night classes at Austin's Coaching College she got a 1st class honours in Leaving Certificate geology but was warned off geology as a career ('not for women'- she eventually agreed, for that period). She obtained a secondary teaching scholarship (12 awards, 753 candidates) and majored in Botany at Melbourne University, graduating with 1st class honours in 1935. In that year she joined the McCoy Society, then newly-formed by (Sir) Frederick Wood Jones, the distinguished Professor of Anatomy, with whom she became firm friends. She went on the Society's Julia Percy Island expedition (1935, difficult landing) and that to the Banks Group (1936). After the war she supervised the Society's work on Lake Purrumbete. Under the supervision of Dr Ethel McLennan she completed a study (3 publications) of the Clavariaceae for her M.Sc (1937). She then proposed to work on nematodes, a task requiring exacting microscopy (she described a new species causing galls on *Microlaena stipoides* in 1938). During this time she acted as a demonstrator and had small University scholarships. Her Ph.D studies were interrupted by an injury in 1938 necessitating hospitalisation and a long convalescence. Medically recommended to do outdoor work rather than microscopy she commenced studies on the ecology of the Dandenongs (buses as the only form of transport!).

Following the setting up of a Soil Conservation Board and in view of the dearth of qualified males during the war, in 1941 she was persuaded, against her will, to accept secondment to the Board as its first field officer to report on the state of the Hume catchment and to be stationed at Omeo. Fire in 1939 had burnt over the high country causing massive soil erosion threatening silting of the proposed dams for the Kiewa Hydroelectric Scheme, then under construction. At first reluctant to go to Omeo and leave

home, she was glad to obtain the lease of a small cottage and quickly integrated into the life of the town and district. She grew to like the life, [‘there was a real community spirit among country people and far more reality than one ever found in the town’ (Anon 1944)], the place and the people, especially the local farmers whom she helped with their soil erosion and pasture problems. She traced her love of the country to having read, as a child, Mary Grant Bruce’s *‘Back to Billabong’*. As a child of 5 her grandmother, Annie Harriet Stinton (of Claremont Nursery in Geelong) had taught her the names of garden plants and she eventually grew to know most Victorian native plants on sight. She had made a walking tour across the Bogong High Plains in 1935.

One of the Omeo district farmers lent her a pony (‘Sheila’) and a saddle and taught her to ride. The Board came up with a miserly five shillings a month for feed for the horse and after some years a small Ford. On horseback she covered the entire Hume catchment (5374 square miles) and in 1944 produced a lengthy report on the state of the catchment which was widely circulated but never officially published. [I propose to publish her report on ‘This tremendous task’ (Anon 1944) as well as a long unpublished ms. on the physiography of NE Victoria which contains interesting observations and concepts which when she wrote it were in advance of their time]. In Omeo she carried out trials of new pasture plants for the area and pasture management and did experiments on erosion control, passing on the results to the local farmers. She identified signs of incipient erosion on the Bogong High Plains, caused partly by summer cattle grazing, partly by fires lit by the cattlemen to ‘control shrubs’. She proposed to study the erosion and its causes. She classified the different types of vegetation on the High Plains and, to test the effects on them of grazing practices, had portions of land bearing these types enclosed by the State Electricity Commission. With help from David Goodall she tried out the statistical ecological methods invented by E.B. Levy, applying them to the enclosed plots and matching non-enclosed areas. From 1945 until the present these measurements have continued to be made periodically, labour being supplied by volunteers who in the early years resided at Scout Hut. Early parties included such notables as G.W. Leeper, Macfarlane Burnet, H.V. Fennessy, Nancy F. Millis, B.J. Grieve, V.J. Hartung (Chemistry), R.T. Patton, J.H. Willis and Margaret Stones. For many years J.S. Turner, S.C. Ducker and Lillian White were members. In 1950 C.L. Birch and (from Cambridge) A.S. Watt were there and in 1952 the US ecologist Lincoln Ellison. Two papers reporting the slow recovery of the vegetation after enclosure were published by Maisie and Professor Turner in 1959 and subsequently Maisie published further papers on the high plains in 1955 (with Alec Costin on glaciation), 1962, 1964 and 1979 (nitrogen fixation).

In 1948 the SCB was reorganized as the Soil Conservation Authority and R.T. Patton retired from the Botany School. Turner asked Maisie to return to teach ecology and (at one week’s notice) systematics. Aware that teaching on these topics in her day had been very poor and in view of the large numbers of students in the post-war years (84 in 1949), lack of dissecting microscopes and the dearth of copies (only 15 available) of Ewart’s *‘Flora’*, she set to and in 1949 produced the first edition of *‘The Monster’*, i.e. *‘Families and Genera of Victorian Plants’*. This in its now illustrated editions is still used by Dr S.L. Duigan in teaching systematics. Second-hand copies are rarely offered for sale. In the first years an outsider ran the practical classes and according to Maisie the result was pandemonium! Maisie subsequently taught systematics at Monash and ANU but bewailed the lack of the superb back-up provided by the late Mr E.J. Sonenberg, himself with an excellent knowledge of the flora, who provided the materials for her practical classes. Her aims were to stress the system and its logic in systematics and to emphasise the dynamics of vegetation in ecology and above all to enthuse students, whether specialising in botany or not, in the subjects she taught. She had revered the excellent teachers she had had, Emily Booth (‘Gypsy’) Hollings at primary school, and Christina Montgomery at MHS and was determined to follow their dedicated examples. She spared neither time nor effort to produce courses which students were later to remember as among the best they had attended. In doing so she endangered her health, suffering two nearly fatal episodes of carbon monoxide poisoning from a kerosene heater, working alone in the otherwise unheated and deserted Botany School at night. She believed in first-hand observation, dissection and hand-sectioning and placed little trust in other peoples’ accounts of structure. She left behind several hundred drawings of floral dissections. In systematics the grasses were her favourite topic, in ecology A.S. Watt’s concept of ‘pattern and process’

and C.M. Donald's little book on pasture management as exemplifying the principles of applied ecology. Goodall left in 1952 and I arrived from Britain in 1953 to teach physiology. From 1954 onwards Maisie and I carried out a very extensive study on the morphology of germination of flowering plants (not published) and in 1955 I proposed to and married her. In that same year we began to do the research on eucalypts which still continues, culminating recently, but by no means ending, in the publication of '*Eucalyptus I*' and '*Eucalyptus II*'. We moved to Queen's University Belfast at the end of 1959 but Maisie kept on with the eucalypt work. In 1965, she returned to Australia to lead yet another party to the High Plains and, with the aid of a Leverhulme Fellowship, to make a collecting trip around the continent; she then rejoined me at Harvard. There she reorganized the eucalypt collection in the Gray Herbarium and made firm friendships with the elderly Miss Perry, Melville's co-worker and other distinguished staff at Harvard.

Returning to Australia (ANU) at the end of 1967 as a Visiting Fellow (a post she retained until her death), Maisie resumed her eucalypt collecting especially in WA and NT. Publication of her exhaustive studies of the location and development of oil glands and ducts followed, as well as the first phytoglyph paper. She was fortunate that, in Canberra, until retirement, she had the assistance of the painstaking and conscientious Mrs Lydia Milkovits, access to FRI through Mr G. Chippendale and Mrs Free and to be helped in scanning electron microscopy by Barry Filshie and Colin Beaton of CSIRO. Maisie deplored the vague, 'shaggy dog' characters which had hitherto traditionally been used to describe eucalypts and sought for 'all-or-nothing' characters. Any opinion expressed had to be backed up with evidence, if possible photographic. She poured scorn on ex-cathedra assertions and 'ipse-dixitisms'. She did not regard such statements as science. However she did not disregard the value of 'hunches' or hypotheses as leading to scientific work to establish the facts. For instance, her early hunch (one of her 1962 papers lays down her hypothesis, but *vide* (Anon 1944), in an address to a soil conservation conference at Euroa in 1944) that the massive growth of shrubs on the High Plains following the 1939 fires would eventually give way - as the shrubs senesced - to grassland proved to be correct, but it took over 40 years to come about. All that time she had resisted vigorously proposals to 'burn out' the shrubs as truncating the natural cycle and merely recycling the shrubs. She was proud to have been attached to Mr Justice Stretton's 1946 Royal Commission which virtually stamped out the practice of burning the Victorian high country.

From her student days, Maisie took a keen interest in art and music (she had to abandon the clarinet and the piano in 1938 following her accident) and in the history of Australian discovery. She became a member of the Lyceum Club in Melbourne. She had haunted bookshops like Hill of Content and bought Major Mitchell's and some of Baldwin Spencer's books. In Omeo she began gathering materials on the history of the district. In order to investigate the source locality of Labillardiere's type of *Eucalyptus cornuta* she proposed to visit Observatory Island off Esperance (another hazardous landing!), where she found it in quantity, together with the other plants named in his journal. She plunged enthusiastically into the task of writing for and working with me to edit a history of botany in Australia for the 13th International Botanical Congress, Sydney 1981. The two books which resulted ('*People and Plants in Australia*', '*Plants and Man in Australia*') covered only selected topics and much remains unpublished (eg sandalwood). History was, then, her third major research topic. In Canberra she became a firm friend of the historian, Sir Keith Hancock and helped him with his book '*Discovering Monaro*'. Wherever she had lived or visited in Melbourne, Omeo, Perth, Darwin, Boston, Belfast and Canberra, Maisie made many good and lasting friendships, in Canberra none more so than with Mrs Peter Karmel who was with her when she died. She was an excellent conversationalist with a well-developed, dry and very Australian sense of humour. Exceptionally widely read and well-educated herself, she deplored the recent decline in educational standards and the introduction of 'mickey mouse' courses. While conscious of the difficulties faced by women in their careers, she had little sympathy for the extremist modern women's movements, perhaps believing with Christina Montgomery who coined the motto of her High School, '*Potens sui*' ('you are your own master'). She detested especially, recent attempts to emasculate the English language. She herself, in the words of the *Argus* reporter (Anon 1944) had 'a strong independence of thought and action'.

In all things, Maisie was a perfectionist, in writing a stickler for good style and grammar and accurate spelling. She was very sensitive to criticism as well as being self-critical of her own creations. She kept up a very lively correspondence with a large number of friends. She would often write long letters and then not send them, considering them trivial, waffly or too long and tedious. She deplored having to send ms. off for publication in a hurry without allowing sufficient time for revision (eg the two history books). We used to reflect on the occasions when, just about to send off a manuscript, we would pause for yet another look at the materials, only to have to revise some statement on the basis of new observations. Although neither overly religious nor superstitious, Maisie sensed the warnings and protective influence of some benevolent spirit on these occasions and, as far as eucalypts were concerned, for her this was always the shade of George Bentham. Towards the end she was deeply hurt by the actions of a critic, a former student and friend of ours, which resulted in loss of our research and publication grants. A fund is to be set up (the Maisie Carr [Fawcett] Trust) which will provide for her an academic memorial which should outlast these petty criticisms and help to further the research aims to which she dedicated so large a part of her life, taking the place of other people's parenting, hobbies or pastimes. Her other memorial resides in those she taught and those who loved her. In the words of Melbourne University's motto, *Postera crescam laude*.

Professor Emeritus D.J. Carr, Yarralumla, ACT.

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Retirement - Dr Robert Boden

Dr Robert Boden, Director of the Australian National Botanic Gardens will retire on Thursday 6 April 1989 after a long association with the Gardens.

REPORTS**AUSTRALIA DAY COUNCIL MEDAL**

Helen Hewson

George Chippendale was the proud recipient of a 1989 Australia Day Council Medal. The Department of the Arts, Sport, the Environment, Tourism and Territories awarded six medals to staff and others who contributed to government projects above and beyond the call to duty. George received his medal for dedication to his role as author of Volume 19 of the '*Flora of Australia*'. Volume 19 is the largest volume of the '*Flora*' produced so far and is the only 'single-author' volume.

AUSTRALIAN BIOLOGICAL RESOURCES STUDY REPORT

Alex George

Bureau of Flora and Fauna, Canberra.

Volume 3 of the '*Flora of Australia*' went to the Australian Government Publishing Service early in January and is about to go to the printer. Volume 18 is going through the refereeing stage, and Volume 50 should be at a similar stage within the next month.

The Flora staff has increased by one with the transfer of Rachel Kentwell to the Project as administrative assistant. We will shortly be appointing a publications assistant who will take over most of the keyboard work. The duties of both positions will include general editorial duties such as making up pages of figures and maps.

Alex George has been visiting some herbaria to discuss 'Flora 2001', a proposal for completing the vascular '*Flora of Australia*' by the year 2001. A report will be prepared for the next '*Newsletter*'.

Readers are reminded that applications for ABRS grants in 1990 should be submitted by 10 April.

SPELLING POSSESSIVE PLACE NAMES

Alex George

Further to my note in *'ASBS Newsletter'* 44 p.8 (1985), I have now been advised that the Council for Geographic Names in Australia has adopted the following resolution in regard to the possessive 's'.

That the guidelines regarding the use of the apostrophe 's' as suggested by South Australia and outlined below be preferred guidelines:

1. Surnames used for geographical features - delete the 's' unless it is part of the name or if the name is also descriptive, e.g. Black; if in doubt retain the 's'.
2. Surnames used for man-made cultural features - delete the 's' unless euphony becomes harsh or unless possession is implied, as in Smiths Hut.
3. Christian names used for geographical features - delete the 's' except where the name is abbreviated or corrupted and retention of the 's' improves the euphony, e.g. Charlies, Maggies Hill.
4. Christian names used for cultural features, usually privately owned dams, wells etc. In pastoral country - possibly no control should be exercised over these names but the 's' could be dropped if the euphony is satisfactory or retained as in Lady Macs Dam, shortened from Lady MacDonald Dam (wife of the lessee).
5. Names possibly signifying the plural should retain the 's'.
6. Names of a metaphoric or mythological nature should retain the 's'.

The apostrophe is dropped in all cases.

NEWS FROM THE ABLO

Karen Wilson

Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, England
Fax 01-948 1197 Telex 296694 KEWGAR

At the beginning of September, I took over from Judy West as Australian Botanical Liaison Officer (ABLO) at the Royal Botanic Gardens, Kew.

As previous ABLOs will know, the liaison work includes a broad range of questions. For example, my first enquiry was a phone call about Queensland plants suitable (and available) for growing indoors in the re-decorated Queensland House in the Strand - Kew horticulturists helped with that one. Some enquiries are unanswerable, such as the one from a visitor to Cairns who wanted to know the name of THE sap-producing tree in that area (no specimen or even photograph to give any clue).

Things have been rather quieter so far than they were for Judy, who had to cope with all the enquiries and activities generated by the Australian Bicentenary. The pamphlet that she helped produce on Australian species cultivated at Kew (of which there a surprising number, both in the open air and in the glasshouses) is now available to visitors to the Gardens. By the way, intending visitors should note that, like many of the museums, Kew has drastically increased its entrance fee: from 50p to two pounds. Regular visitors can still take advantage of a season ticket for five pounds.

Kew organised a one-day symposium on its connections with Australian botany, 'Australian plants in science and horticulture', as its last contribution to the bicentennial program. A wide range of subjects was covered. For example, one Kew staff member described the chemical analysis that she and

colleagues have been carrying out on the seeds of Black bean (*Castanospermum australe*), and potential benefits in the treatment of cancers and AIDS. I gave an overview of the development of Australian botanic gardens, in which of course Kew was very heavily involved last century.

Australasian visitors have been relatively few. So far they have included Bob Chinnock, Wee-Lek Chew, Les Pedley, Peter Bridgewater, Ian Parbery and Bill Sykes, as well as Betty Rees, a mycologist from University of New South Wales whom I had not met in Sydney. Stephen Forbes is a more local visitor, coming over from Bath.

In November, I flew to West Berlin, then used a Eurail pass to go to Paris, Leiden, Utrecht and Gent to work in the herbaria in those centres, mostly on my research and Flora projects on the Cyperaceae, Casuarinaceae and Polygonaceae. While at Gent University, I gave a seminar/slide show on vegetation regions of Australia (in English!). Later in the year, I am to repeat this at Trinity College in Dublin and also at the AGM of the new British branch of SGAP.

A perennial topic of conversation is the British weather. I am delighted to say that it has not been living up to its reputation! Autumn was colourful and there was no recurrence of the gales of October 1987, to everyone's relief. There was a little snow in some areas in mid-November but from then till the middle of January, it has been remarkably mild over most of the island, to the extent that I saw snowdrops flowering in SW Scotland at Christmas and the *Chaenomeles* outside my front door in Petersham burst into bloom in early January.

The effects of the storm of October 1987 in SE England are not very obvious now to those who did not know the area before then. At Kew, 500 trees were lost, now shown by a few open patches in groves and newly planted saplings. Many other trees had been damaged and this became more obvious with leaf-fall in autumn. Amazingly, the glasshouses suffered very little. Staff were quick to take cuttings from rare fallen trees and these are being propagated. I have not yet visited Wakehurst Place, Kew's satellite in West Sussex, where the damage was many times greater. In other places such as Richmond Park, some trees are still to be cleared. At Sevenoaks, in Kent, five of the famous oak trees were lost. They were replaced with advanced saplings but the newspapers reported late last year that vandals had destroyed those. Isn't human nature wonderful?

While many trees were lost, the storm has had some beneficial results. Re-landscaping is now possible in some areas, and a wide range of interesting research programs has begun. At Kew, fallen trees are being put to good use in research projects on mycorrhizal fungi, root pathogens, wood anatomy and chemical composition, and dendrochronology (to assess the relationship between tree growth ring size and pollution). Some timber is also being supplied to craftsmen, for example to make lutes. In addition, Kew is helping to conduct a survey of the general losses in the South East. This should enable assessment of rooting systems of different tree types and correlations to be made between the stability of different trees and particular soil types, so that in future advice can be given on potentially dangerous or stable trees for particular situations.

PLANNED ABLO VISITS TO OTHER HERBARIA

For the information of those wanting specimens or literature checked:

Karen Wilson will be visiting Dublin (Trinity College and Glasnevin) in late April. She is also hoping to visit Copenhagen, Lund, Paris and possibly Florence and Geneva in May-June, as well as Leiden in late August.

BOOK REVIEWS

Prescott, A. (1988). **It's Blue with Five Petals. Wildflowers of the Adelaide Region.** 400 pp. Ann Prescott, Adelaide.

This paperback was written and illustrated by Ann Prescott and is available from the author, GPO Box 1581, Adelaide SA 5001, \$35 plus \$3 postage, or Bankcard or Mastercard.

Floras, botanical keys and guides come in many forms. Easy-on-the-eye colour photo books have dominated the popular market for some years. They are often somewhat shallow in content and the serious student then turns to the more technical and formally arranged Floras. We have seen a number of excellent State Floras in recent years covering part or all of various States. However these are intimidating for people inexperienced in botany and may cover areas vastly greater than many users are ever likely to need.

Ann Prescott has produced a 'user friendly' guide to the plants of the Mt Lofty Ranges. This is non-technical, easily used and comprehensive in species covered, though grasses and sedges are not included. The 1000 illustrations are arranged under flower colour and shape. The user then matches the specimen with the illustration and on the opposite page is a plain language paragraph which gives common name, scientific name and a few comments on the species. In this volume the pages are varied, attractive and generously set out. The illustrations are of high quality, catching the spirit of the twig illustrated very well and are often supplemented by some useful character such as a stem section, bract, leaf, pod or seed, an aspect that the photographer can rarely include. Ms Prescott's pen line is varied and lively, some shading or stippling is used or pubescence indicated as needed so that the drawings never look tired or hackneyed.

Obviously this volume will be of limited use outside the designated area and in no way lessens the need for comprehensive formal floras but it is likely to fill a real need for anyone interested in local plants without experience in the more technical aspects of botany.

David E. Symon

Ducker, Sophie C. (ed.) (1988). **The Contented Botanist.** 413 pp. Melbourne University Press, Melbourne. \$65.95.

The role of Sophie Ducker in the production of this book is enormous but unobtrusive. The book is a collection of the 'letters of W.H. Harvey about Australia and the Pacific'. It is the third in the Meigunyah Press Series made possible by bequests from Sir Russell and Lady Grimwade.

A preface explains the role of Sophie Ducker and the 'mechanics' of putting together this collection of letters. The introduction is a brief biography of the Irish algologist W.H. Harvey (1811-1866). The bulk of the text is devoted to Harvey's letters (c. 78%). It is supported by five appendices: I Biographical Notes, II Plants mentioned in the Letters, III Subscription Prospectus of Specimens of Australian Algae (facsimile), IV Habitat Localities of Harvey's Australian Algae, and V Provenance of the Letters. The appendices together with annotations and an extensive bibliography demonstrate the depth of research undertaken by Sophie Ducker.

The letters span 1852-1864 but the journey to Australia began in 1853 and ended in 1856. The charm of the letters exposes a gentle, tenacious, gracious man. However, they expose a great deal more - botanists of the time, Australia of the time, field work of the time and so on.

The enchantment is added to by the poignant choice of illustration. Twenty plates give a view of people important to Harvey, the plants important to Harvey and the places visited by Harvey. The latter are all authentic paintings, sketches or photographs done in the 1850's. All add a visual dimension of reality

yand the several maps add the dimension of orientation. One facsimile reproduction of a snippet of one letter demonstrates the enormity of the labour of transcribing the letters. While the letters demonstrate the art of nineteenth century letter writing, the script is not good. The transcription must have been an ordeal - it certainly has emancipated the reader.

Sophie Ducker is to be congratulated on her balance of input in bringing William Harvey to us through his letters. The book has so many facets that it will inform the botanist, the algologist, the historian, the educationist, the bibliophile, the botanical illustrator, the Irishman and the Australian. It carries with it a depth and a delicacy quite equivalent to the *Claudea elegans* Lamouroux on the dust jacket.

Helen Hewson

NOTE: Sophie Ducker is now researching for a similar publication, to the '*Contented Botanist*', on Ronald Campbell Gunn (1808-1881), the Tasmanian collector. If you can assist with information or letters please contact her at Melbourne University: Dr S.C. Ducker, School of Botany, University of Melbourne, Parkville, VIC 3052.

NOTICES

Requests for Material

Having scanned the collections of Fumariaceae at MEL prior to commencing an account of this family for Vol. 2 of '*Flora of Australia*', I am anticipating a similar underwhelming dearth of collections in other Australian Herbaria and would like to encourage collectors not to overlook *Fumaria*, *Platycarpus* and *Corydalis* during the '89 flowering and fruiting season.

Flowers and mature fruit are generally essential for positive identification and notes on flower colour/leaf glaucousness or pigmentation invaluable. Pickled flowers are a welcome bonus.

Please allocate duplicates to MEL as promptly as possible so that the treatment can be completed with reference to as wide a range of specimens as possible prior to the late 1990 deadline for manuscript.

Neville Walsh

National Herbarium, Birdwood Avenue, South Yarra, VIC 3141

Wanted: Ripe fruiting material of *Aglaia* (Meliaceae), collected into spirit and supported by dried herbarium voucher specimens of twigs and leaves and, if available, flowers. Note that all species of *Aglaia* appear to be dioecious. Complete (and therefore the most useful) collections would include male and female flowering material and mature fruits in spirit from each locality. If there are any field workers who are in a position to gather any of this range of material, then Dr C.M. Pannell, would be particularly grateful. Her address is: Department of Plant Sciences, University of Oxford, South Parks Road, Oxford, England OX13RA. If you cannot send directly to her, then send the material to me and I shall see that it is forwarded to Dr Pannell.

Roger Hnatiuk

ABRS, GPO Box 1383, Canberra, ACT 2601

7th Australasian Plant Pathology Society Conference, 1989

The Australasian Plant Pathology Society will hold its seventh national conference in Brisbane this year from 3-7 July. For further information, please contact: APPS '89, Conference Secretariat, UniQuest Limited, University of Queensland, St Lucia Qld 4067.

The Society

The Society is an association of over 300 people with professional or amateur interest in Botany. The aim of the Society is to promote the study of plant systematics.

Membership

Membership is open to all those interested in plant systematics and entitles the member to attend general and chapter meetings and to receive the *'Newsletter'*. Any person may become a member by forwarding the annual subscription to the Treasurer. Subscriptions become due on the 1st January.

The Newsletter

The *'Newsletter'* appears quarterly and keeps members informed of Society events and news, and provides a vehicle for debate and discussion. In addition original articles, notes and letters (not exceeding ten pages in length) will be considered. Contributions should be sent to the Editor at the address given below, preferably as an unformatted ASCII file on an MS-DOS diskette accompanied by a printed copy, or as two typed copies with double-spacing. All items incorporated in the *'Newsletter'* will be duly acknowledged. Authors are alone responsible for the views expressed.

Notes

The deadline for contributions is the last day of February, May, August and November.

ASBS Annual Membership is \$16 (Aust) if paid by 31 March, \$20 thereafter. Students (full-time) \$12. Please remit to the Treasurer.

Advertising space is available for products or services of interest to ASBS members. Current rate is \$30 per full page. Contact the *'Newsletter'* Editor for further information.

All address changes should be sent to the Treasurer or the Editor.

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CONTENTS

Wattle Become of Acacia by Bruce Maslin	1
'Tazetta' Narcissus Naturalised in Western Australia by Greg Keighery	13
Continental Drip - A Theory of the Shape of Continents by David Morrison	15
The Rouleau Card Index to Specific Epithets by Karen Wilson	18
'Index Nominum Genericorum' Cards: Don't throw them out by Karen Wilson	19
Sebastian Schauer, an Overlooked Botanist by Joy Thompson	19
ASBS Business	
Subscriptions to ASBS for 1989 by Don Foreman	20
Reminder : 12th General Meeting, 28 June 1989 by Barry Conn	20
'Flora of Central Australia' by Barbara Briggs	21
Personal News	
Obituary - Stella Grace Maisie Carr (1912-1988)	21
Retirement - Dr Robert Boden	28
Reports	
Australia Day Council Medal	28
ABRS	28
Spelling Possessive Place Names	28
News from the ABLO	29
Planned ABLO Visits to other Herbaria	30
Book Reviews	31
Notices	
Requests for Material	32
7th Australasian Plant Pathology Society Conference, 1989	32